

N^o 22,139



A.D. 1900

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COMPLETE SPECIFICATION.

A Process for the Manufacture of Slabs, and Plates, of Artificial Stone.

I, LUDWIG HEATSCHEK, of Vöcklabruck, Austria, Manufacturer, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement.

5 This invention relates to a process for the manufacture of slabs and plates of artificial stone from hydraulic binding substances and fibrous materials, and has for its object to manufacture such slabs and plates of any desired thickness and of a strength or toughness not attained by other processes.

The nature of this invention consists in feeding a very dilute mixture of 10 hydraulic binding substances such as hydraulic lime or Portland cement, and finely divided fibrous materials of animal, vegetable, or mineral origin, to one or more pairs of rollers by means of an endless cloth or band in order to press the same.

The setting of the hydraulic binding substance is conveniently delayed by the 15 addition of gypsum, preferably unburnt, or other suitable substance. The fibrous material, as before stated, of various kinds may, if desired, be subjected to a preliminary treatment. For instance vegetable fibrous materials, such as cellulose, which do not bind or set with cement, may be rendered suitable for the process by treatment with silicates such as silicate of soda; and mineral fibre 20 such as glass or slag wool may be rendered rough on the surface for the same purpose by any suitable means *e.g.*, by the action of hydrofluoric acid.

The mixture of fibrous materials and hydraulic binding substances is greatly diluted, for instance one part by weight of the mixture of hydraulic binding 25 substance, Portland cement, with the fibrous material, asbestos, may be diluted with 300 up to 500 or more parts by weight of water, so that every fibre is completely enveloped by the hydraulic binding substance: large particles or lumps of the latter, not permeated by fibres, being separated by their greater specific gravity whereby the finished plates are rendered very weatherproof. I find 30 that 80% of cement with 20% of fibrous material forms a good mixture.

The mixture thus prepared is then fed in thin layers, by means of an endless cloth or band to one or more pairs of rollers so that the fibres are placed mostly 35 in the direction of the plane of the slab or plate instead of vertically to such plane. The article thus attains a strength or toughness not obtained hitherto, the breaking thereof being impossible unless the fibres also fracture.

If desired, the diluted mixture of hydraulic binding substances and finely 40 divided fibrous materials may be wound around a drum by means of an endless cloth or band a number of times until the desired thickness of the article has been obtained.

The before mentioned delay in the setting of the hydraulic binding substances 45 renders it possible to roll and press together a number of layers of the mixture in order to form a practically solid article of the required thickness. This delay in the setting permits also the cutting, embossing, shaping, stamping and other similar manipulation of the slabs, and plates in any desired suitable manner.

In order that my invention may be the better understood, I will now describe 45 in relation to the accompanying drawings a machine for carrying out my process.

[Price 8d.]



A Process for the Manufacture of Slabs, and Plates, of Artificial Stone.

In this machine *a* is the trough in which the mixture of cement and asbestos or other fibre is contained; *b* is the sieve-drum by which the mixture is taken out of the trough; *c* is the endless band that transfers the mixture in thin layers to the drum *d*; *d* is the drum on which the mixture is wound in thin layers and whereon said layers are well united or felted together. 5

The device *e* consists of two or more rollers suitably pressed together so as to serve as pressing rollers for the material led between these rollers. This device serves to preparatively press the layers going to the drum *d*. The intended product becomes improved by pressing together the different layers, so that it may be advantageous to arrange such pressing devices at various places of the whole machine; for this reason also above the drum *d* a pressing roller *γ* may advantageously be arranged. The material thus plate like formed on the drums *d* is divided or cut by means of any suitable device into pieces of a suitable size or shape, which pieces may then be pressed or stamped and allowed to harden. 10

Having now particularly described and ascertained the nature of this invention and in what manner the same is to be performed I declare that what I claim is;— 15

1. A process for the manufacture of plates and slabs of artificial stone, in which a greatly diluted mixture of hydraulic binding substances and finely divided fibrous materials are fed by an endless cloth or band, in the manner of paste board making machines, to one or more rollers in order to be pressed; such mixture being delayed in setting if desired, substantially as described. 20

2. A mode of carrying out the process claimed in Claim 1 in which the mixture is fed to the pressing rollers in very thin layers, in order that the fibres will be placed mostly in the direction of the plane of the slab or plate and to avoid as much as possible placing them vertically thereto, substantially as described. 25

3. A further mode of carrying out the process claimed in Claim 1, in which the mixture is wound by an endless cloth or band, on to a drum, a number of times, until the desired thickness of material has been obtained, substantially as described. 30

4. A further mode of carrying out the process claimed in Claim 1 in which the fibrous materials are subjected to a suitable chemical or preliminary treatment, substantially as described.

5th. In the process claimed in Claims 1—4 the preliminary treatment of fibrous vegetable materials with silicates, substantially as described. 35

6th. In the process claimed in Claims 1—4 the preliminary treatment of fibrous mineral materials by roughening the surface thereof, substantially as described.

7th. A process for the manufacture of plates and slabs of artificial stone from hydraulic binding substances and fibrous materials, substantially as described. 40

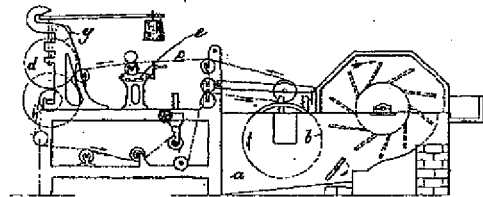
Dated this 5th day of December 1900

FELL & JAMES,
Agents for the Applicant.



A.D. 1900, Dec. 5, N° 34,133.
HATSCHEK'S Concrete Speculation.

2 SEACT.

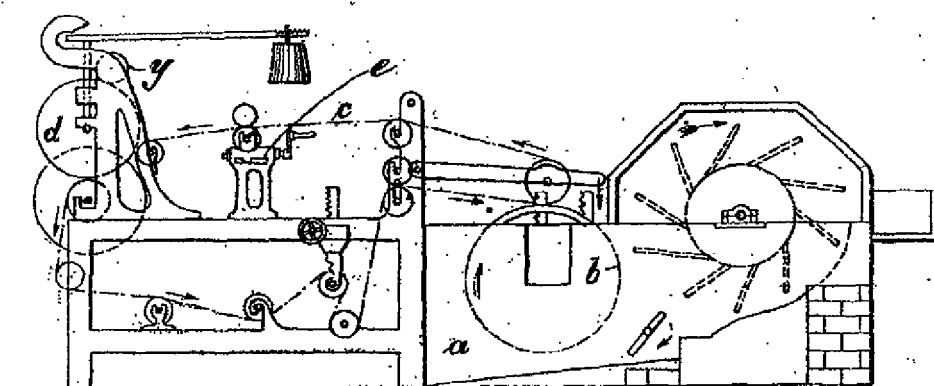


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HATSCHEK'S COMPLETE SPECIFICATION.

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